

REMARKS/ARGUMENTS

Claim Status – Request for Reconsideration

Reconsideration of this application is requested. The claims presented for reconsideration are claims 16, 20-22, 24-26, and 28-30.

Claim 16 has been amended to a preferred embodiment of the invention, consistent with the description in the substitute specification at page 6 lines 4-9, as well as the description at page 4, lines 4 and 10-1, including the preferred embodiments previously included in now canceled claims 17 and 19. Claim 30 has been amended for clarity, consistent with the description in the substitute specification at the paragraph bridging pages 5-6, in which the amendment clarifies that an additional step includes re-impregnating the catalyst with transitional metals. Accordingly, no new matter has been entered by way of these amendments.

Claim Rejections – 35 U.S.C § 102

Claims 16-17, 19, 22, 24 and 29 were rejected under 35 U.S.C § 102(b) as being anticipated by McArthur (US Patent No. 4,039,471). This rejection is traversed and reconsideration requested.

This invention is directed to a method for regenerating denox catalyst having reduced activity based on the accumulation of phosphorus and other metal or metalloid compounds. The reduced activity catalyst is treated in the presence of a substantially aqueous solution of at least one water-soluble, alkalinely reacting salt, in which the salt is selected from the group consisting of carbonates, tartrates, oxalates and acetates. This treatment is carried out along with ultrasonic or low-frequency oscillations. The catalyst having been treated by the alkaline solution is neutralized in a subsequent treatment with at least one organic acid selected from the group consisting of oxalic acid, citric acid, malonic acid and tartaric acid.

McArthur is directed to a method for rejuvenating or reactivating a deactivated automobile emission control catalyst. In the first step of the method, an aqueous solution of one or more select ammonium or acetate salts is utilized primarily to dissolve lead sulfate. The salts include ammonium acetate, ammonium citrate, ammonium tartrate, ammonium carbonate, ammonium sulfate, ammonium nitrate, ammonium chloride, sodium acetate, calcium acetate, potassium acetate and magnesium acetate. See column 3, lines 10-19. In the preferred method of operation, the aqueous solution is agitated by a recycle pump that continuously removes

dissolved lead compounds from the vicinity of the catalyst, without having to remove the catalyst from the automobile in which the catalyst is housed. See column 3, lines 44-54. Following treatment with the solution, the catalyst is rinsed, preferably with dilute acetic acid. See column 4, lines 11-12.

McArthur differs from the claimed invention in that McArthur does not treat the catalyst in the presence of a substantially aqueous solution of a water-soluble, alkalinely reacting carbonate, tartrate, oxalate or acetate salt, coupled with neutralizing in a subsequent treatment with at least one oxalic, citric, malonic or tartaric acid. Although McArthur couples the use of ammonium acetate with neutralization by acetic acid, the acetic acid is a mono-organic acid, which is significantly different in structure and effect from any of the claimed multi-carboxylic acids.

According to a preferred embodiment of applicants' claimed invention, treatment with a specific based of a normally organic acid selected from carbonates, tartrates, oxalates and acetates, followed by neutralizing with a multi-carboxylic acid such as oxalic, citric, malonic and tartaric acid, results in significant removal of a variety of metal compounds that cause deactivation of the catalyst. One example of the preferred embodiment is shown in Example 6, with the specific example coupling the use of an ammonium carbonate solution with an oxalic acid neutralization bath. Such a treatment is not disclosed or suggested by McArthur.

Claim Rejections – 35 U.S.C § 103

Claims 20 and 21 have been rejected under 35 U.S.C § 103(a) as being unpatentable over McArthur in view of Dittmer (US Patent No. 6,241,826). This rejection is traversed and reconsideration requested.

Claims 20 and 21 concern the additional use of surfactants during treating. McArthur does not disclose the use of surfactants, and it has been alleged in the office action that the additional teaching of Dittmer would have made the use of surfactants obvious.

Dittmer discloses a process for regenerating catalytic converters using a cleaning solution and by applying ultrasonic treatment. The cleaning solution can include alcohols and various additives such as surfactants. Following cleaning, the treated or cleaned catalytic converter is rinsed with water.

Like McArthur, Dittmer makes no mention of treating a deactivated catalyst with a an

alkaline reacting salt of an organic acid selected from carbonates, tartrates, oxalates and acetates, followed by neutralizing with a multi-carboxylic acid such as oxalic, citric, malonic and tartaric acid. Accordingly, the combination of McArthur with Dittmer fails to suggest applicants' claimed invention.

Claims 25, 26 and 28 have been rejected under 35 U.S.C § 103(a) as being unpatentable over McArthur in view of Budin (US Patent No. 6,484,733). This rejection is traversed and reconsideration requested.

Budin discloses a process for regenerating used deNO_x or dedioxin catalytic converters, which comprises washing the used catalytic converter with a solution of surface-active substances in a liquid with a simultaneous addition of metal compounds creating active centers. Catalyst treated with the solution is washed with water, preferably low hardness water.

Budin shares in common with McArthur and Dittmer the fact that there is no disclosure in any of the cited references of a catalyst treatment process that couples together treating a deactivated catalyst with alkaline reacting salt of an organic acid selected from carbonates, tartrates, oxalates and acetates, followed by neutralizing with a multi-carboxylic acid such as oxalic, citric, malonic and tartaric acid. Accordingly, the combination of McArthur with Budin fails to suggest applicants' claimed invention.

Claim 30 has been rejected under 35 U.S.C § 103(a) as being unpatentable over McArthur in view of Nojima (US Patent No. 6,395,665). This rejection is traversed and reconsideration requested.

Nojima differs quite significantly from any of the cited references as well as the claimed invention in that Nojima discloses a process for regenerating a denox catalyst that incorporates a first step of using treating the catalyst with an aqueous solution of a strong organic base or acid, followed by washing with water. There is no suggestion in Nojima of treating with alkaline reacting salt of an organic acid selected from carbonates, tartrates, oxalates and acetates, followed by neutralizing with a multi-carboxylic acid such as oxalic, citric, malonic and tartaric acid. Accordingly, the combination of McArthur with Nojima also fails to suggest applicants' claimed invention.

CONCLUSION

Having demonstrated that the cited references fail to disclose or suggest the invention as claimed, this application is believed to be in condition for allowance. Accordingly, applicants request early and favorable reconsideration in the form of a Notice of Allowance.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

The Commissioner is further authorized to charge any deficiency in fees or credit any overpayments, including those required for extension of time, to Deposit Account No. 04-1061 (Docket # 39469-18).

Respectfully submitted,

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Date



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